

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/00364

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ H01Q1/52

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ H01Q1/52, G06K17/00, H01F17/04, H01Q1/24, H01Q7/00, H04B5/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1922-1996 Toroku Jitsuyo Shinan Koho 1994-2003
Kokai Jitsuyo Shinan Koho 1971-2003 Jitsuyo Shinan Toroku Koho 1996-2003

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 09-284038 A (NHK Spring Co., Ltd.), 31 October, 1997 (31.10.97), Full text; all drawings (Family: none)	1, 7, 8, 16, 19-21 9-15, 17, 18 3
X	JP 11-332631 A (Mitsubishi Materials Corp.), 07 December, 1999 (07.12.99), Full text; all drawings (Family: none)	2, 4
X	JP 10-107531 A (Toshiba Corp.), 24 April, 1998 (24.04.98), Full text; Fig. 12 (Family: none)	5, 6

 Further documents are listed in the continuation of Box C. See patent family annex.

"A"	Special categories of cited documents: document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E"	earlier document but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
03 April, 2003 (03.04.03)Date of mailing of the international search report
15 April, 2003 (15.04.03)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2001-056847 A (Mitsubishi Materials Corp.), 27 February, 2001 (27.02.01), Page 3, right column, lines 1 to 25; all drawings (Family: none)	9-16
Y	EP 0986037 A (Mitsubishi Materials Corp.), 15 March, 2000 (15.03.00), Full text; Fig. 5	17,18
	& JP 11-339143 A Full text; Fig. 5	
	& WO 99/49437 A1 & US 6285284 B1	
A	JP 10-162260 A (Mitsubishi Materials Corp.), 19 June, 1998 (19.06.98), Full text; all drawings (Family: none)	11-13